

U.S. Army Corps  
of Engineers  
Norfolk District

# RESTORATION *News*

Former Nansmond Ordnance Depot Project Update • Volume 14 • March 2005

## Corps Steps Up Environmental Studies at FNOD

The U.S. Army Corps (the Corps) has budgeted nearly \$3 million for environmental investigations at the Former Nansmond Ordnance Depot (FNOD) this year. Five of the six FNOD National Priority List (NPL) source areas are currently in the Remedial Investigation stage. These sites include the TNT area, James River Beachfront, Horseshoe Pond, Main Burning Ground area and Steamout pond, and the Track K/Former Tire Pile area. During the remedial investigation phase, the Corps evaluates the nature and extent of environmental hazards at the site and conducts a more in depth analysis of the risk posed to human health and the ecosystem.

The Corps is also initiating or continuing site investigations and sampling efforts at a number of "Areas of Concern" at the former depot including the Nearshore area, the Nansmond River Beach, Tracks G, H, & I, and the Marine Corps Power Generation Station (see site map on page 2). In addition, the Corps is proceeding with a Remedial Investigation at the TCC Lake, and an Engineering Evaluation/Cost Analysis at the Pesticide Drum Area. Two public meetings are scheduled this year to discuss future actions at the Track K/Former Tire Pile and the Pesticide Drum area. Here's what's happening at these two sites....

**Track K/Former Tire Pile Area** – The Corps has completed human health and ecological risk assessments for the Track K area to determine the risk posed by the slightly elevated levels of dieldrin and dioxin in the soil. The human health risk assessment evaluated both current and future uses under various potential exposure scenarios including, adolescent and adult trespassers, visitors, residents, industrial workers, and construction workers. The results of the human health risk assessment indicate that the site poses no significant risk to human health. The

ecological risk assessment determined that dieldrin may pose a threat to insect-eating birds such as the robin and insect and plant eating mammals. However, due to the small size of the site, the project team suspects that dieldrin contamination is unlikely to pose a significant threat to these wildlife communities. The Corps is working with EPA to determine how to address the findings of the ecological risk assessment. The Corps is considering a recommendation of no further action at this site. A public meeting will be held prior to the August 4 RAB meeting to discuss the Proposed Plan for this site.



Track K before and after the  
removal

*Continued on page 2*

### *Mark Your Calendar...*

#### Restoration Advisory Board Meetings

MAR 16	March 16
APR 7	April 7
JUN 2	June 2*
AUG 4	August 4*
OCT 6	October 6
DEC 1	December 1
Time: 6:30 PM - 8:30 PM	
*Will begin at 7:00 PM following public meeting	

#### Public Meetings Planned

JUN 2	Pesticide Drum Area EE/CA Public Meeting
AUG 4	Track K Area Proposed Plan Public Meeting
Time: 6:00 PM - 7:00 PM	

#### All Are Welcome!

##### Location:

Bon Secours Health Center at Harbour  
View, 5818 Harbour View Boulevard  
(Suffolk).

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# Environmental Studies Update

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The Track K site was one of six “source areas” identified by EPA on the National Priority Listing of the FNOD site in 1999. The tires, paint cans, and miscellaneous wastes were removed by the Corps in 2001. Two rounds of soil sampling were conducted in 2002 and 2004 to determine whether any contaminants are present in the remaining soil. Two samples collected at depths of zero to six inches were slightly above EPA’s residential cleanup levels for dieldrin and dioxin. None of the soil samples collected at depths of 12 to 24 inches were above EPA’s residential cleanup levels. The absence of contamination at shallow depths suggests that the potential for groundwater contamination is unlikely.

**Pesticide Drum Area** – The Corps has concluded that dieldrin in the soil at the pesticide drum area poses a risk to human health and the local ecosystem. The Corps is conducting an Engineering

Evaluation & Cost Analysis (EE/CA) to evaluate the options for addressing these risks. The preferred alternative calls for removing a volume of soil that could range between 25 to 100 tons. The soil would be transported to an approved disposal facility. The Corps would then conduct confirmation soil sampling to ensure that the remaining soil meets EPA-established residential risk based concentration levels. This would allow unrestricted future land use. The Corps will host a public meeting in June to discuss this site and the Corps EE/CA study.

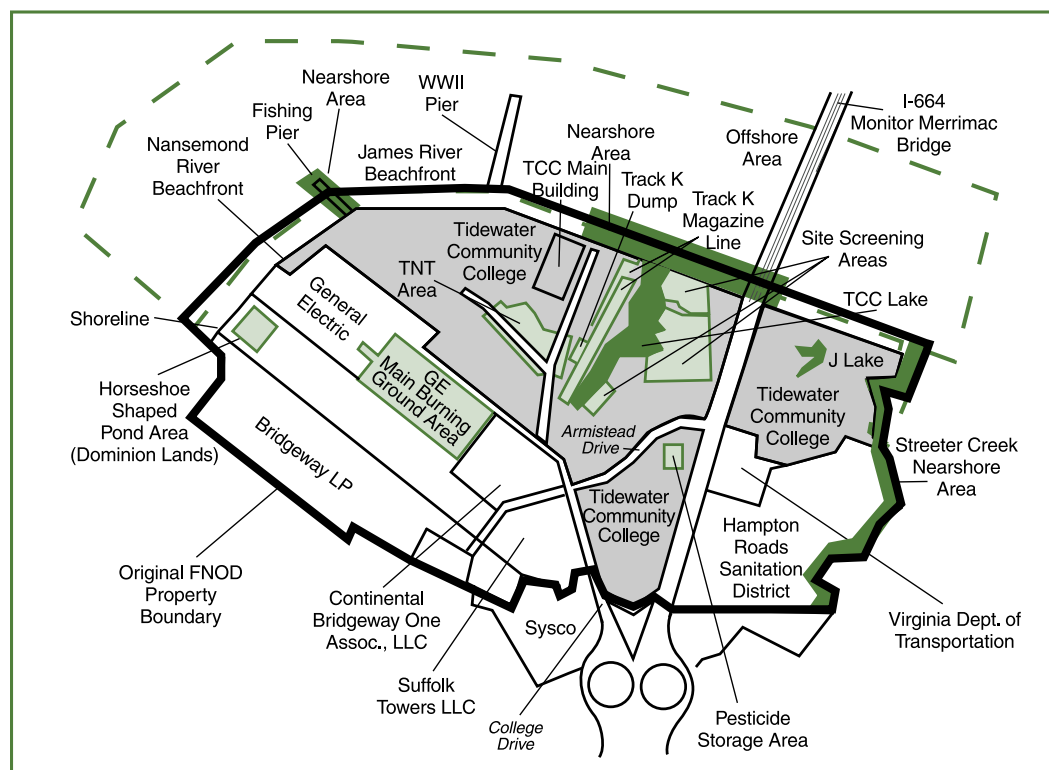
In 1998, two unsealed, unmarked 55-gallon drums, one empty and one containing an unknown liquid, were found on TCC property in a wooded area bounded by Interstate 664, College Drive, and Armistead Avenue. The Corps removed the drums in November 2000 and collected the first round of soil samples immediately following this removal. This testing revealed the presence of dieldrin, a pesticide,

in the drum containing product. The Corps completed a second round of soil sampling at the Pesticide Drum area in February 2004 to delineate the extent of dieldrin at the site. Elevated levels of dieldrin in the surface and subsurface soil are limited to the vicinity of the Pesticide Drum Area.

**Background Study** – The Corps finalized the background study in 2004. This study will assist the project team in evaluating environmental sampling data collected across the site. This study provides background concentration levels of organic and inorganic constituents in soil and groundwater which will be compared with soil and groundwater sampling data collected by the Corps at sites under investigation.

Background sample locations were selected where no prior DoD activities/disturbances occurred based on historical aerial photos and historical records. The background sampling field activities were completed in two phases. The first phase was completed between November 1999 and April 2000. It included 24 soil samples collected at 12 boring locations and groundwater samples collected at 15 locations. Forty-eight additional soil samples were collected and analyzed in January 2002 to determine background levels of metals.

This study revealed that background levels at the FNOD site are lower in many cases than background levels found in other locations in the state.



Site Map

# Munitions Response Efforts

## 2004: The Year in Review

In 2004, the Corps completed munitions investigations at all of the Former Nansmond Ordnance Depot sites identified by EPA as time-critical. In all, the Corps has cleared approximately 64 of the 78 acres that require munitions investigation across the former depot site. During 2004, the Corps removed 242 Discarded Military Munitions (DMM) items, 1,000 pounds of munitions debris, and 171,743 pounds (nearly 86 tons) of scrap metal and non-munitions related debris. The DMM items were removed from the Main Burning Ground area, the athletic fields on TCC property, the area along Welner Drive, and the Nansmond River Beachfront. The types of munitions that were found include: 3-inch projectiles, 20mm to 75mm projectiles, boosters, booster adapters, and grenade fuzes.



Booster Adapter



75mm round found on Nansmond River beachfront. Recovered items at FNOD are not in pristine condition and are hard to recognize due to corrosion and soil adhering to them.

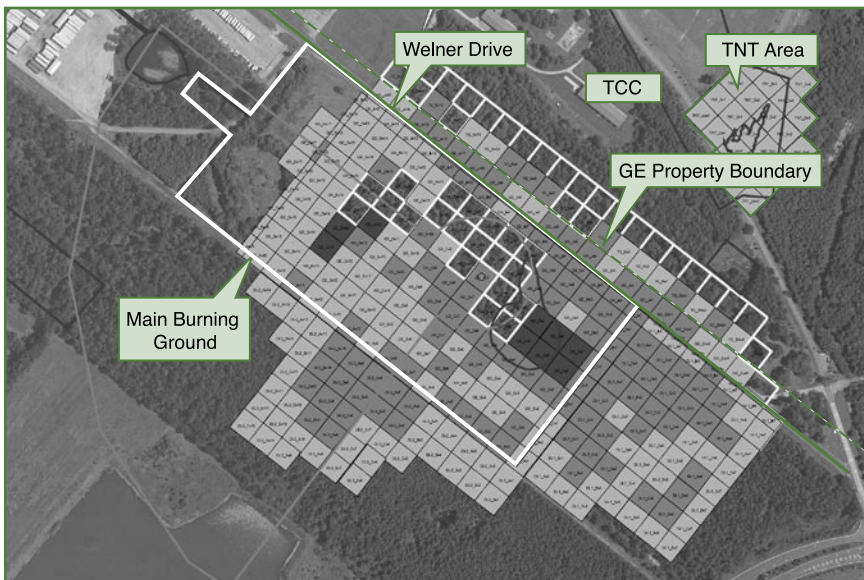
## 2005 Munitions Response Sites

- Main Burning Ground
- Welner Drive
- Horseshoe Pond
- Nansmond River Beachfront

**Main Burning Ground (GE)** – The Corps continues munitions clearing efforts in the Main Burning Ground area on GE property. The Corps has cleared approximately 147 investigation grids. There are approximately 29 investigation grids left to clear at this site. Based on historical records and aerial photographs, the 32-acre site appeared to be actively used between 1942 until the late 1950's, first as a burning ground or test area, then as a waste disposal area.

## 2005 Munitions Response Plan

The Corps will spend \$1.3 million on munitions investigations at the Former Nansmond Ordnance Depot this year. There will be two teams of ordnance specialists working concurrently. These teams will focus on the Main Burning Ground, the Horseshoe Pond, the Nansmond River Beachfront, and Welner Drive. The Corps expects to complete all munitions clearance efforts at FNOD in two to three years.



Main Burning Ground and Welner Drive Investigation Grids

As of the end of January, the Corps had removed 559 discarded military munitions items, 123,202 pounds of munitions debris, and 870,284 pounds (over 435 tons) of non-munitions related scrap and construction debris from this site since the investigation began in 1996. The vast majority of the munitions items have been inert (not containing explosive material). Since many of the remaining investigation grids at the Main Burning Ground are full of construction debris, the Corps is gearing up to try a mechanical sifter at the site to speed up the process (see page 4).

**Welner Drive (GE & TCC property)** – Welner Drive (formerly Park Drive) is located north of the Main Burning Ground. The Corps is continuing its munitions investigation north of Welner Drive on GE and TCC property. This area appears to be a northern kick-out area of the Main Burning Ground.

*Continued on page 4*

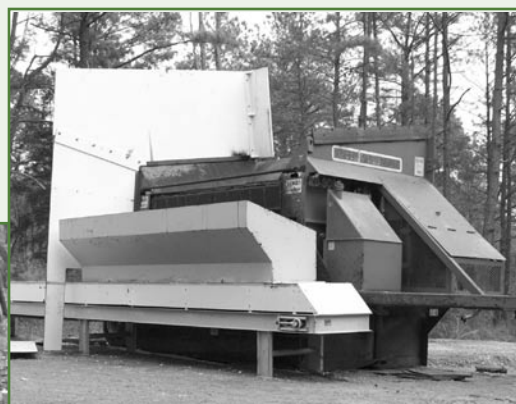


# Munitions Response Efforts

## Corps Experiments with New Munitions Removal Equipment

The Corps is scheduled to begin testing the sifter as soon as the soils are dry enough to safely operate the field equipment. The sifter is located in a remote wooded area approximately 300 feet from Welner Drive in the center of the Main Burning Ground.

The sifter has been specially outfitted with protective steel armor to protect the field crew and the public. In addition, video cameras will be mounted to observe the operation while it is in use. There will be a 243-foot safety perimeter established by the field crew in front and around the sides of the sifter and a 1,700-foot safety perimeter behind the equipment while it is in use. No roads or occupied buildings will be affected by the safety perimeter or the sifter. The Corps is coordinating its field efforts with affected landowners. The noise associated with the mechanical sifter will be minimal due to its location and is similar to that of other types of construction equipment such as excavators and backhoes. “We’re hopeful that once the soils dry out, the mechanical sifter will improve the rate of clearance,” says Adriane James, the Army Corps program manager.



*Mechanical Sifter*



*Shielded Loader*

### *Continued from page 3*

There are 69 investigation grids along Welner Drive so far. Investigations have been completed at 45 of these grids thus far. The Corps expects its investigation to expand at this site, perhaps adding as many as 49 additional grids. Due to the safety perimeter required during munitions investigations, work is proceeding slowly. Many of the investigation grids can only be investigated on Sundays when the adjacent buildings are empty.

The Corps is scheduled to complete the investigation grids along Welner Drive on GE property by March 2005. The Corps is scheduled to complete investigation grids north of Welner Drive on TCC property by year end.

### **Horseshoe Pond (Dominion property)**

– The Horseshoe Pond is a 1.2-acre site that was listed as a “source area” by EPA in their 1999 National Priority Listing of the Former Nansemond Ordnance

Depot site. The site is located on Dominion Lands property southwest of the GE plant adjacent to the Nansemond River. In 2003, the Corps conducted a geophysical survey in several areas of

the Horseshoe Pond that were previously inaccessible. Two significant sub-surface anomalies were discovered during this survey. This Spring, the Corps will drain the pond to further investigate these anomalies to determine if they are munitions items or scrap metal.



*Horseshoe Pond*

*Continued on page 5*

# Munitions Response Efforts

*Continued from page 4*

**Nansemond River Beachfront (GE property)** – The Nansemond River beach is located northwest of the GE facility on TCC property. It is approximately 200 feet long. The Corps will begin a munitions investigation at the Nansemond River Beachfront immediately following the anomaly investigation at the Horseshoe Pond this Spring. The ordnance team will begin investigating a 100-foot area surrounding the location where a 6-inch shrapnel round was found in 2003.

The Corps completed a removal action at this site in 2001 to remove metal slag. During a routine inspection in June 2003, a British 6-inch shrapnel round was found on this beach by an EPA contractor. The round was not fuzed but did contain a live (low explosive) expelling charge in the base. The Corps' munitions contractors safely removed and disposed of the item. There has been extensive erosion at the Nansemond River beach since Hurricane Isabel in September 2003. In March 2004, the Corps found another inert round here. As a result, in September 2004, the Corps completed a geophysical investigation of the bluff and the beach. To date, 129 discarded military munitions have been found and removed by the Corps at the Nansemond River beach.



*Nansemond River Beachfront*

**Planned Detonations** – The Corps' planned detonations of discarded military munitions items found on site occur approximately once every other week. Planned detonations usually occur in the late afternoon between 3 and 4 p.m. If you have questions or comments about the Corps' planned detonations, please contact Adriane James, Formerly Used Defense Site Program Manager, Army Corps of Engineers, Norfolk District, phone: 757-201-7701, [adriane.b.james@usace.army.mil](mailto:adriane.b.james@usace.army.mil).

## Glossary

### What are Military Munitions?

**Military munitions** include all types of conventional and chemical ammunition products and their components, produced by or for the military for national defense and security.

**Discarded Military Munitions** – Military munitions that have been buried, abandoned, or disposed of improperly.

**Munitions and Explosives of Concern (MEC)** – This is the broad term used to describe military munitions that may pose explosive safety risks including: a) unexploded ordnance, b) Discarded Military Munitions, c) Explosive Munitions constituents (e.g TNT, RDX) – soil containing high enough concentrations to pose explosive hazard.

**Munitions Constituents** – Chemical contaminants or breakdown elements originating from unexploded ordnance, discarded military munitions, or other military munitions.

**Munitions Debris** – Non-explosive debris from practice or training rounds (ie. empty 75 mm shrapnel debris)

**Unexploded Ordnance (UXO)** – Military munitions that have been primed, fuzed, armed, or otherwise prepared for action. They have usually been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material. These items remain unexploded either by malfunction, design, or other cause. Approximately 3-10% of the munitions fired are UXO.

## Web Site Links

U.S. Army Corps of Engineers FNOD Project Web Site:  
<http://www.nao.usace.army.mil/projects/nansemond/welcome.html>

Environmental Protection Agency:  
<http://www.epa.gov/reg3hwmd/super/VA/nansemond/index.htm>

Virginia Department of Environmental Quality (VDEQ):  
<http://www.deq.virginia.gov>

# RAB

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*RAB members and guest  
mingling after a RAB meeting*

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### Information Repository

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